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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,806	03/04/2002	Saeko Kurachi	111204	1604

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EXAMINER
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ILDEBRANDO, CHRISTINA A

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/086,806	KURACHI, SAEKO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Christina Ildebrando	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 24-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-23 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 recites the limitation "wherein the maximum pore diameter of the carrier ranges from 0.55 to 0.65 nanometers (nm)." This limitation renders the claim indefinite because it is not clear whether the claim actually requires any pores in the size range recited or whether the carrier cannot contain any pore larger than 0.65 nm. For purposes of search and examination, the claim has been interpreted as though the carrier cannot contain any pore larger than 0.65 nm.
4. Claim 11 recites the limitation "a carrier whose maximum pore diameter ranges from 0.55 to 0.65 nanometers (nm)." This limitation renders the claim indefinite because it is not clear whether the claim actually requires any pores in the size range recited or whether the carrier cannot contain any pore larger than 0.65 nm. For purposes of search and examination, the claim has been interpreted as though the carrier cannot contain any pore larger than 0.65 nm.
5. Claim 41 recites the limitation "the maximum pore diameter of the carrier is 0.54 nanometers (nm)." This limitation renders the claim indefinite because it is not clear whether the claim actually requires any pores in the size range recited or whether the

carrier cannot contain any pore larger than 0.54 nm. For purposes of search and examination, the claim has been interpreted as though the carrier cannot contain any pore larger than 0.54 nm.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 6-8, 11-12, 17-19, and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Szabo et al.

Szabo et al. (US 6,136,289) discloses a catalyst composition useful in hydrocarbon conversion processes. The catalyst composition comprises a ferrierite zeolite loaded with platinum (column 2, lines 10-60 and the Examples). With respect to claims 1 and 11, the ferrierite zeolite taught by the reference would necessarily have a maximum pore size of 0.65 nm.

With respect to claim 1, the “consisting essentially of” language in the claims is noted. The term limits the claim to the specified ingredients and those that do not affect the basic and novel characteristics of a composition. *Ex parte Davis et al.*, 80 USPQ 448. When applicant contends that modifying or additional components in the reference composition are excluded by the recitation “consisting essentially of,” applicant has the

burden of showing the basic and novel characteristics of the claimed composition, i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 143 USPQ 256.

The process of making limitations in claims 6-8 and 17-19 are noted. However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

The intended use limitations recited throughout the claims are noted by the examiner. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. *In re Casey*, 370 USPQ 235 and *In re Otto*, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Szabo et al.

8. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Koikeda et al.

Koikeda et al. (US 4,622,308) discloses a catalyst composition useful in the production of hydrocarbons from synthesis gas. The catalyst composition comprises a ferrierite zeolite in combination with an iron and platinum component (column 4 –

column 5). With respect to claims 1 and 11, the ferrierite zeolite taught by the reference would necessarily have a maximum pore size of 0.65 nm.

With respect to claim 1, the "consisting essentially of" language in the claims is noted. The term limits the claim to the specified ingredients and those that do not affect the basic and novel characteristics of a composition. *Ex parte Davis et al.*, 80 USPQ 448. When applicant contends that modifying or additional components in the reference composition are excluded by the recitation "consisting essentially of," applicant has the burden of showing the basic and novel characteristics of the claimed composition, i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 143 USPQ 256.

The process of making limitations in claims 6-8 and 17-19 are noted. However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

The intended use limitations recited throughout the claims are noted by the examiner. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. *In re Casey*, 370 USPQ 235 and *In re Otto*, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Koikeda et al.

9. Claims 11-12, 17-20, 22-23, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Andorf et al.

Andorf et al. (US 5,955,395) discloses a catalyst composition useful in the selective of carbon monoxide. The catalyst composition comprises platinum metal supported on a zeolite carrier (column 2, lines 5-33). Suitable zeolites include ZSM-5 (Figure 2, column 3, lines 20-25, and column 4, lines 18-30). With respect to claims 11, the ferrierite zeolite taught by the reference would necessarily have a maximum pore size of 0.65 nm or 0.54 nm.

With respect to claim 41, the "consisting essentially of" language in the claims is noted. The term limits the claim to the specified ingredients and those that do not affect the basic and novel characteristics of a composition. *Ex parte Davis et al.*, 80 USPQ 448. When applicant contends that modifying or additional components in the reference composition are excluded by the recitation "consisting essentially of," applicant has the burden of showing the basic and novel characteristics of the claimed composition, i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 143 USPQ 256.

The process of making limitations in claims 17-19 are noted. However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and

not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

With respect to catalyst claims 11-12, 17-19, and 22-23, the intended use limitations recited throughout the claims are noted by the examiner. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. *In re Casey*, 370 USPQ 235 and *In re Otto*, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

With respect to claim 20, the reference teaches that the catalyst composition may be employed in a reactor for the selective oxidation of carbon monoxide from hydrogen-rich feeds originating from a methanol reforming reactor (column 2, lines 5-10 and column 3, lines 54-68). It is taught that the catalyst is useful in producing outlet streams which are very low in CO and suitable for use in a fuel cell (columns 2-3).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Andorf et al.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the



invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 11-12, 17-23, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 833 401 in view of Andorf et al.

EP 0 833 401 discloses an apparatus for reducing carbon monoxide. With reference to Figure 1, the EP reference teaches a reforming reactor in combination with a CO selective oxidizing unit. The effluent from the oxidizing unit is then passed to a fuel cell, which receives supplies of the gaseous fuel produced by the fuel reformer (and containing reduced amounts of CO) and an oxygen containing oxidizing gas and generates an electromotive force through electrochemical reactions (Figure 1 and page 9, lines 20-30). The EP reference teaches that suitable CO selective oxidation catalysts include platinum metal on a support such as zeolite (column 39, lines 25-40).

The difference between the reference and the claims is that the reference does not disclose the specific zeolite claimed, i.e. ZSM-5 or ferrierite.

Andorf et al. (US 5,955,395) discloses a catalyst composition useful in the selective of carbon monoxide. The catalyst composition comprises platinum metal supported on a zeolite carrier (column 2, lines 5-33). Suitable zeolites include ZSM-5 (Figure 2, column 3, lines 20-25, and column 4, lines 18-30). With respect to claim 11, the ZSM-5 zeolite taught by the reference would necessarily have a maximum pore size of 0.65 nm.

The reference teaches that the catalyst composition may be employed in a reactor for the selective oxidation of carbon monoxide from hydrogen-rich feeds originating from a methanol reforming reactor (column 2, lines 5-10 and column 3, lines

54-68). It is taught that the catalyst is useful in producing outlet streams which are very low in CO and suitable for use in a fuel cell (columns 2-3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the EP reference to include the use of the catalyst composition taught by Andorf et al. in the reactor and fuel cell in light of the teaching by Andorf et al. that the catalyst is useful for selective CO oxidation. One would have been motivated to do so in light of the specific teaching by Andorf et al. that the catalyst may be used in a CO selective oxidation reactor coupled with a reformer for the specific purpose of reducing CO concentrations prior to passing the effluent to a fuel cell.

***Claim Rejections - 35 USC § 102/103***

12. Claims 11-19, 22-23, and 41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 6-198192.

JP 6-198192 discloses a catalyst composition comprising ZSM-5 zeolite containing both iron and platinum (Abstract). With respect to claims 11, the ZSM-5 zeolite taught by the reference would necessarily have a maximum pore size of 0.65 nm or 0.54 nm.

With respect to claim 41, the "consisting essentially of" language in the claims is noted. The term limits the claim to the specified ingredients and those that do not affect the basic and novel characteristics of a composition. *Ex parte Davis et al.*, 80 USPQ 448. When applicant contends that modifying or additional components in the reference composition are excluded by the recitation "consisting essentially of," applicant has the

Art Unit: 1725

burden of showing the basic and novel characteristics of the claimed composition, i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition. *In re De Lajarte*, 143 USPQ 256.

The intended use limitations recited throughout the claims are noted by the examiner. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. *In re Casey*, 370 USPQ 235 and *In re Otto*, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

The process of making limitations in claims 14-19 are noted. However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Alternatively, with respect to the molar ratios of Fe and Pt employed in the preparation of the catalyst, if the prior art does not in fact anticipate the instant claims, then the claims would have been obvious to one of ordinary skill in the art. *Ex parte Lee*, 31 USPQ 2d. 1105. In this case, the JP reference teaches values for [Fe] and [Pt] which would result in ratios which would overlap and encompass the ranges instantly claimed. Refer to [0015] and [0018]. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of

ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

#### ***Allowable Subject Matter***

13. Claims 9-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a carbon monoxide concentration reduction apparatus comprising a hydrogen rich gas supply, an oxygen supply, and the claimed carbon monoxide selective oxidizing catalyst.

#### ***Response to Arguments***

15. Applicant's arguments filed May 256, 2004 have been fully considered but they are not persuasive.

With respect to the prior art references in general, applicant argues that the prior art does not disclose a ferrierite carrier having a maximum pore diameter ranging from

Art Unit: 1725

0.55-0.65 nm or a ZSM-5 carrier having a maximum pore diameter of 0.54 nm. This has been considered but is not persuasive. The characteristics discussed by applicant are characteristic of the zeolites chosen, i.e. both ZSM-5 and ferrierite taught by the prior art would necessarily possess the claimed maximum pore diameters, as is discussed in the instant specification. The comparative examples referred to by applicant compare ZSM-5 and ferrierite to zeolites which have smaller or larger pore diameters and would not be expected to behave in the same manner.

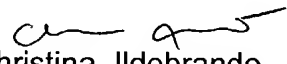
### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Christina Ildebrando  
Patent Examiner  
Art Unit 1725

8/5/04

CAI  
August 5, 2004